ComStation^{BUS-C}

Order no. 77 0605 50

User Guide

Tunstall

00 8811 17

All rights to this documentation are reserved, in particular copyright and distribution rights. No part of this documentation may be reproduced in any form or processed, copied or distributed using electronic systems without the prior written consent by Tunstall GmbH.

We reserve the right for implementing technical changes.

© Tunstall GmbH

ComStation^{BUS-C} - User Guide, 00 8811 17, 10/2014 (Rev. 2.0)

1. Table of Contents

2. For safety 3
2.1 General safety instructions 3
2.2 If a fault is displayed... 4
2.3 If “no connection“ is displayed... 6

3. Necessary basic knowledge 7
3.1 Flamenco nurse call system 7
3.2 ComStation^{BUS-C} 11

4. Log on / Log off 15
4.1 Log on 16
4.2 Log off 17

5. Speech connections 19
5.1 Status of the speech connection 20

6. Handling calls 21
6.1 Call display 22
6.2 Basic procedure for call handling 26
6.3 This is how you handle a call 27

7. Announcements 31

8. Call 33

9. Ward coupling 35

10. Activating a shift 37

11. Adjusting the volume 41

12. Put the ComStation^{BUS-C} into operation 43
12.1 Menu structure 45

13. Cleaning and disinfection 47

1. Table of Contents

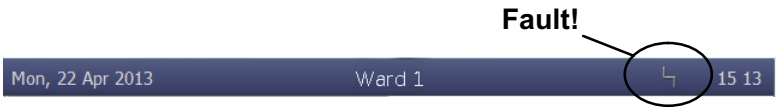
2. For safety

2.1 General safety instructions

WARNING! Please follow the safety instructions below for the safety of staff and patients:

- Before the ComStation^{BUS-C} can be used, it has to be **put into operation by a technician**. Please refer to page 43.
- This **user guide** assumes that you are familiar with the nursing procedures in hospitals.
- You must acquire **sufficient knowledge about operating and using the nurse call system** via suitable measures such as training sessions. The measures must be repeated if necessary. This user guide assumes that the reader possesses sufficient knowledge.
- Ensure that the ComStation^{BUS-C} is **always plugged in**.
- **Never** place the ComStation^{BUS-C} **in a humid environment**. Take care that is does not become wet. The ComStation^{BUS-C} is powered by electricity and thus should not be exposed to moisture.
- Bright sunlight can impair the readability of the display. Place the ComStation^{BUS-C} in a **non-reflective location**.
- The ComStation^{BUS-C} is under the prescribed limits regarding **electromagnetic compatibility**. Nevertheless, faults can occur in individual cases and under certain conditions. In this case, you must **increase the distance** between the affected devices or take appropriate measures to repair the faults.
- **Never open the casing** of the ComStation^{BUS-C}. In case of a fault, return the device to the supplier.

2.2 If a fault is displayed...



If the symbol for faults appears in the title bar, you must deal with it immediately.

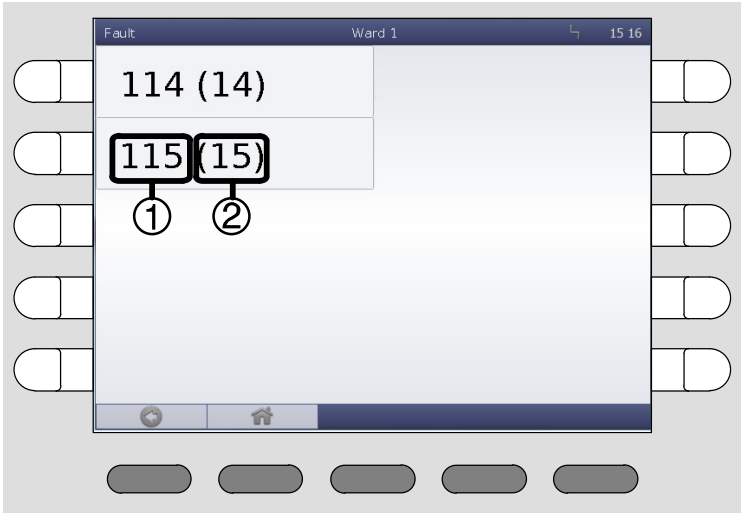
There is a fault in the nurse call system. This means that perhaps you can no longer be called from every room.

Additionally your are informed acoustically about the fault by the repeated tone sequence “1 second tone - 20 seconds pause“.

You must immediately do the following:

- Press “System“ → “Info“ → “Fault“.

✓ All rooms with faults are shown.
The tone for the fault display is turned off.



① Location name

② Participant number

NOTE! For the meaning of location name and participant number please the technician should refer to the online help for the “System-Organizer“ configuration software.

- Inform a responsible technician about the fault. S/he will then deal with correcting the fault.
- To return the to the main window, press .

✓ The main window appears again. You can resume work.

Acoustic fault display

The acoustic fault display sounds, when there is a new fault.

The acoustic fault display is turned off, when the fault is cleared or when you have displayed the fault in the described manner. In the second case the acoustic fault display is turned off, although the fault has not yet been cleared.

2.3 If “no connection“ is displayed...

If the symbol for “no connection“ appears in the title bar, you must deal with it immediately.

Die ComStation^{BUS-C} is not ready to use as there is no connection to the nurse call system.

You must immediately do the following:

- Inform a responsible technician.
- Ensure that the patients are still given the best possible care. Look out for the display of the room lamps.

3. Necessary basic knowledge

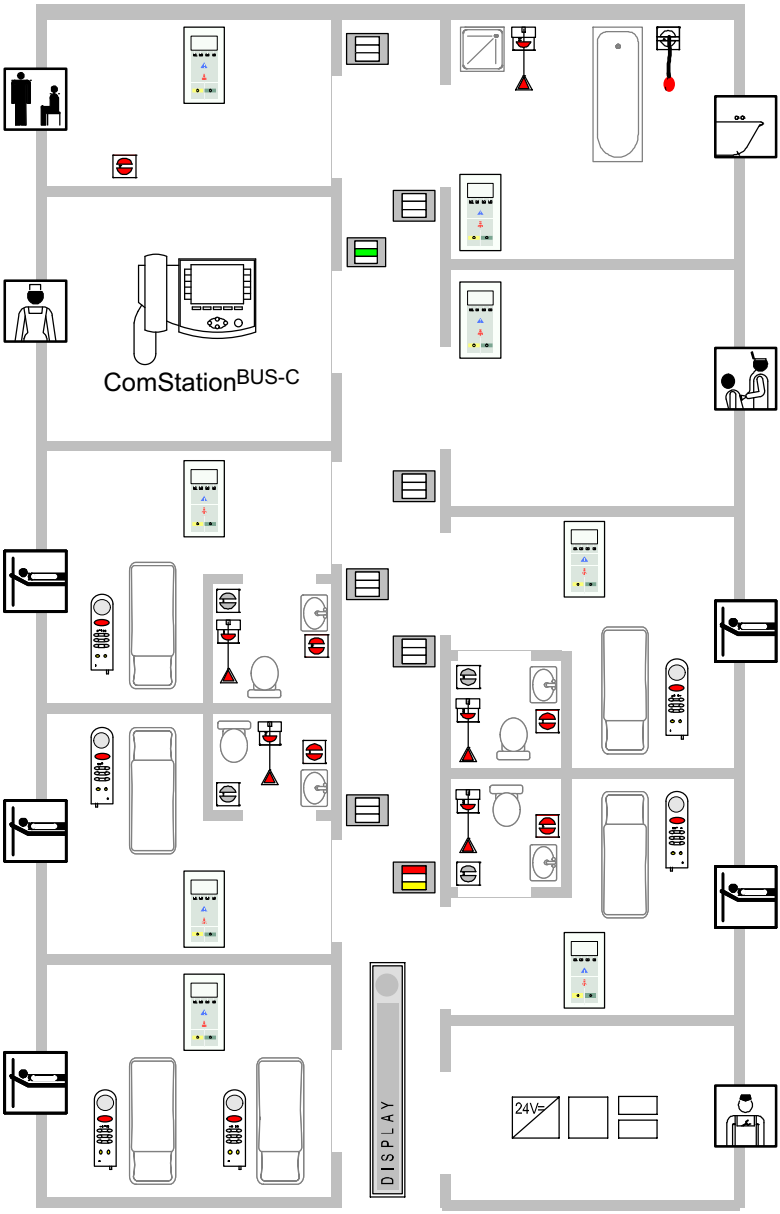
3.1 Flamenco nurse call system

Flamenco systems are nurse call systems for hospitals and similar establishments.

If a patient needs help, he/she presses the call button on his/her call device (patient handset). This call will be displayed on the ComStation-$^{BUS-C}$ in the ward nurse station and **answered**. The staff at the ComStation^{BUS-C} shall ask the patient about the nature of the call and decide on appropriate action. Maybe medical attention or assistance is required. The ComStation^{BUS-C} will show where staff is present in the rooms, as they press a presence button when entering a room. The staff at the ComStation^{BUS-C} informs the staff in a room, where help is required. of the call. An illuminated room lamp above the door outside the room also identifies the call location. After dealing with the problem or query, the call is **cancelled** when presence switch is switched off upon leaving the room. All signals displaying the call will now be reset.

Calls to which a speech connection has not yet been established, i.e. those which have not yet been answered are referred to as **fresh calls**. Calls which have been answered, but have not yet been cancelled, are are referred to as **answered calls**.

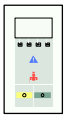
Sample ward



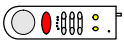
Icons used for the sample ward drawing

Room lamp

Corridor display

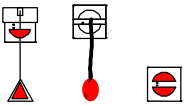


ComTerminal



Patient handset

Cancel switch/WC



Various call switches

What else you should know

Announcements

Aside from call handling, announcements can be made from the ComStation^{BUS-C}; these can be made either exclusively to staff or to all rooms in the ward.

Staff groups

The medical staff can be divided into two groups (e.g. nurses and doctors). In order that the staff at the ComStation^{BUS-C} address the appropriate medical staff, a distinction is made between both types. We have staff 1and staff 2. Each staff group has its own presence button in the room (Staff 1 = green, Staff 2 = yellow). You have to ask your system administrator which type of staff is allocated to the respective group.

Privacy

Although it is possible to converse with rooms from the ComStation^{BUS-C}, it is not possible to listen in on the rooms without this being noticed. The reason is, every room has a privacy function, a technical facility which makes listening in impossible. This will be cancelled if a call is triggered from the room or if staff are logged as present in the room.

It is also possible to manually activate the privacy function, although staff are logged as present in the room.

Exception for children's rooms: In the Flamenco nurse call system it is possible that rooms are set as children's rooms. In these rooms, the privacy function is always OFF. For optimum care of the patients in these rooms, you can listen in to these rooms if needed, even if there is no call and no staff is present in the room. Your system administrator will tell you which rooms are set up as children's rooms.

Call forwarding

As a rule, calls are displayed and answered by the ComStation^{BUS-C} at the nurse station. If the ComStation^{BUS-C} is unoccupied, the calls are automatically forwarded to the rooms where medical staff are logged as present. The calls can then be answered by the medical staff in the room via the communication terminal (ComTerminal).

Ward coupling

During periods of low activity, two or more wards can be organisationally coupled. This means that in the coupled wards, all calls from the coupled wards will be displayed and answered.

Zones and shifts (zone nursing)

Wards can be organisationally divided into smaller entities (zones). Then the calls within one zone are only forwarded within that zone. The division into zones can be changed during the course of the day (shift operation).

3.2 ComStation^{BUS-C}

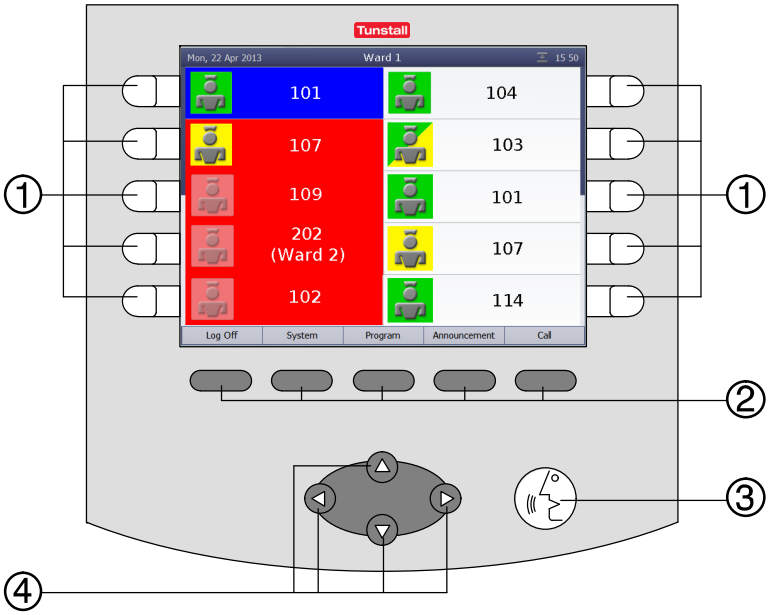
The ComStation^{BUS-C} is a console for the ward nurse station.
One ward is managed by the ComStation^{BUS-C}.

In the following cases, the managed area is not the same as the ward:

- Ward coupling (refer to page 35 onwards)
- Shift operation (refer to page 37 onwards)

① Handset
② Loudspeaker
③ Connection cable
④ Display
⑤ Buttons
⑥ Microphone

The buttons



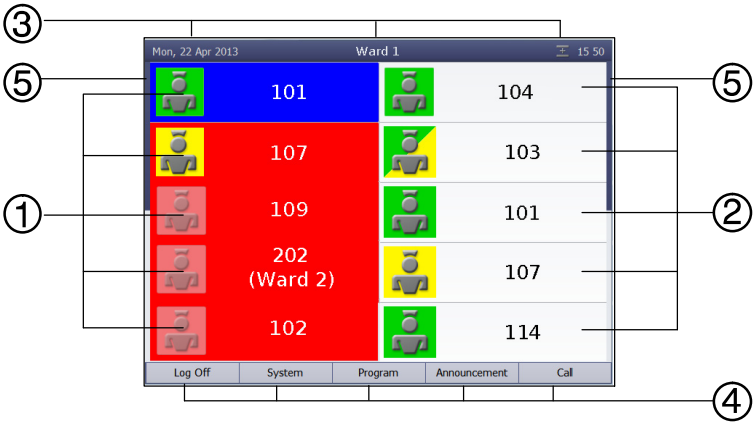
① **Select buttons** for selection of the associated list field.

② **Menu buttons** for selection of the relevant menu option.

③ **Automatic button** for automatic selection of the most urgent call. Thereby the current window is closed.

④ **Navigation buttons** to scroll through lists, if a scroll bar is displayed.

The main window



① Call list:
Calls from connected rooms are shown. Fresh calls are flashing. Calls can be selected with the select button next to the item on the list.

② Staff list:
The staff presence messages for the connected rooms are listed in time order, oldest message from the top. You can speak to the staff in the rooms via the select buttons next to the item on the list.

Green: Staff 1

Yellow: Staff 2

Green/yellow: Staff 1 and staff 2 in the same room

③ Title bar:
On the left in the main window: The date, otherwise the menu level.
On the right: The time.

Fault in the nurse call system! See page 4 onwards.

No connection! ComStation^{BUS-C} is not ready to use! See page 6 onwards.

Ward coupling: This ward is coupled with other wards, refer to 35 onwards.

Shift operation: A shift is active, refer to 37 onwards.

④ Menu:
You can select menu options with the menu buttons.

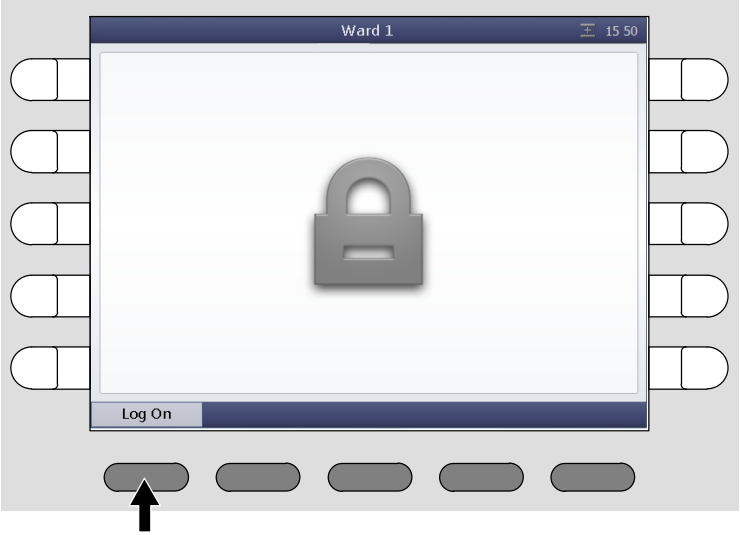
⑤ Scroll bar:
A scroll bar is displayed, iIf the list is too long to be viewed completely.
To scroll through the list use the navigation buttons.

4. Log on / Log off

Before you start working on the ComStation^{BUS-C}, you must log on. When you leave the ComStation^{BUS-C}, you must log off.

4.1 Log on

The ComStation^{BUS-C} is always turned on. Before you log on, you will see the following window in the display:



- Press “Log On“.

✓ You are logged on. The main window of the ComStation^{BUS-C} appears. The green section of the room lamp illuminates to indicate that the ComStation^{BUS-C} is in use.

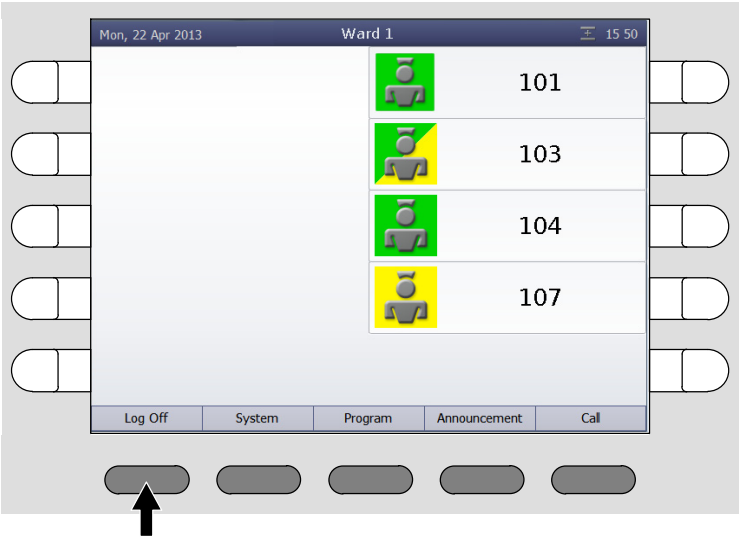
4.2 Log off

Each time you leave the ComStation^{BUS-C}, you should log off. Calls for your ComStation^{BUS-C} will then be transferred to another console or will be forwarded to the ward.

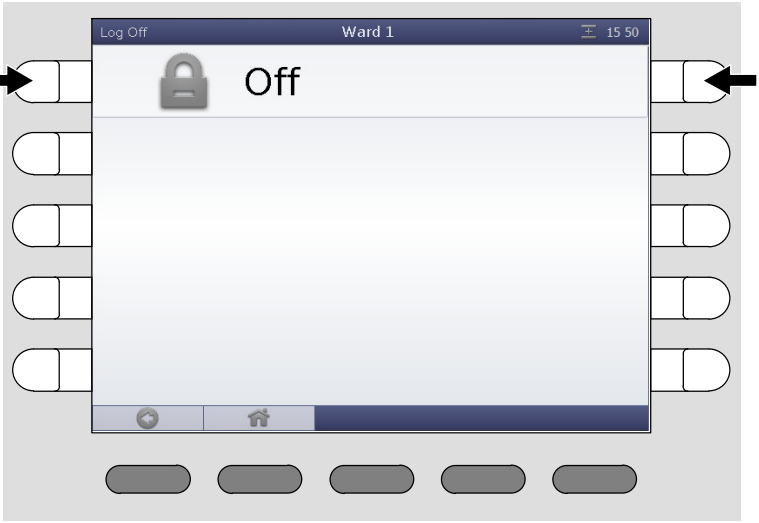
If you have not logged off when you have left the ComStation^{BUS-C}, the calls will still be forwarded but only after a pre-set period of time has elapsed.

This is how you log off:

- Press “Log Off“ in the main window.



✓ The following window appears:



- Press the button on the left or on the right of „Off“.

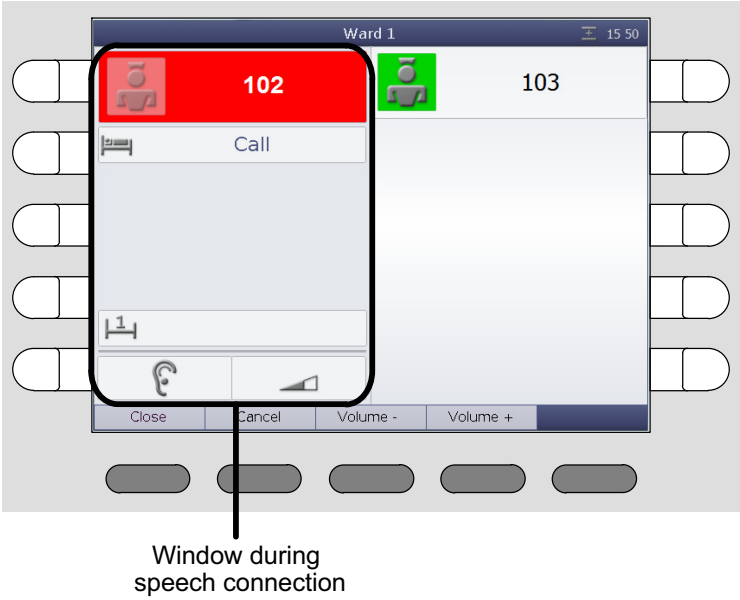
✓ You are logged out. The window to log-on appears again (see page 16). The green section of the room lamp goes out to show that the ComStation^{BUS-C} is not in use.

5. Speech connections

You can establish speech connections to rooms on your ward from your ComStation^{BUS-C}. For example, you speak to patients who have called, or with medical staff, to organize help.

You will learn how to establish speech connections in various situations in the following sections. In all cases, a window will appear when a speech connection has been established.

Example:



5.1 Status of the speech connection

The status of the speech connection is shown in the window using the following symbols:

Status of the privacy in the room:

Privacy: In the room, the privacy function is switched on. You can speak to the room but not listen to what is said in the room (see page 9).

No privacy: You can speak to the room and listen to what is said in the room.

Receiving volume:

Receiving volume is displayed.
To increase the volume press “Volume +“.
To decrease the volume press “Volume -“.
This is a temporary setting. For how to set the volume permanently, refer to page 11 onwards.

NOTE! If a speech connection is not closed within one minute, it will be closed automatically.

6. Handling calls

The following will explain how calls are shown on the ComStation^{BUS-C}. You will learn the sequence of call handling. Finally, it will be explained how you handle calls at your work place.

6.1 Call display

Call types and categories

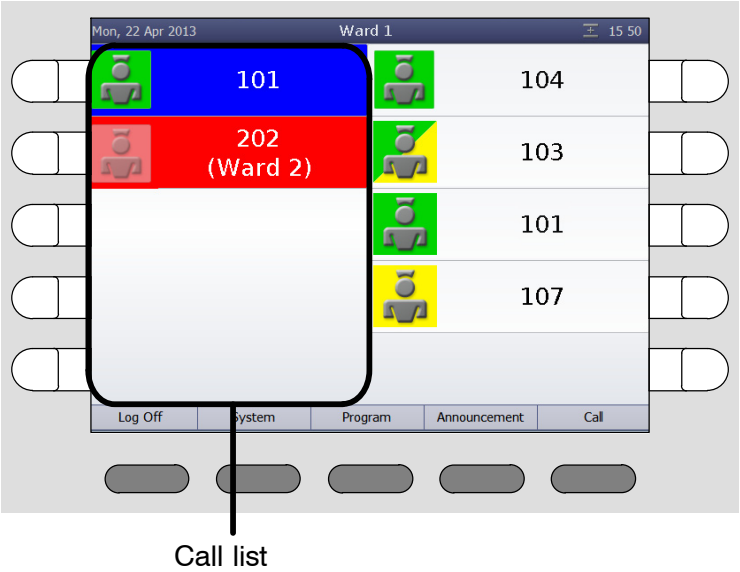
We differentiate various call types. It is important that you know these types of calls as they will give you a hint towards the kind of assistance the patient requires. The call types are divided into three categories: Calls, emergency calls and alarms. The call categories are distinguished by their level of urgency.

Call category	**Call type**	
Call (low priority)	Call	A patient has raised a call or the plug of the patient unit has been disconnected from the connection socket.
	WC Call	A call was raised in a WC room.
	Door Call	Somebody raised a call at the entrance door.
Emergency Call (medium priority)	Emergency Call 1	A call was raised whith presence of staff 1 logged.
	Emergency Call 2	A call was raised whith presence of staff 2 logged.
	WC Emergency	A WC call was raised whith presence of staff logged.
	Telephone Call	The telephone in the duty room is ringing.
	Diagnostic Call	A medical monitoring device has raised a call. That can be, for example, a monitor that has automatically raised a call when values have exceeded specified parameters.
Alarm (high priority)	Cardiac Alarm	Staff has pressed a special cardiac alarm button to call for assisstance, e.g. a re-animation team.

NOTE! Your system administrator can amend the terms for the call types (SystemOrganizer) to customize them. For this reason the terms on your ComStation^{BUS-C} may differ from the terms above.

How calls are displayed

Calls from connected rooms are shown on the left side of the main window in the call list - with the room number.



The flash sequence of the fresh call indicates the call category:

Call category	Flash sequence
Call	Red is flashing slowly.
Emergency Call	Red is flashing quickly.
Alarm	Blue is flashing very quickly.

Calls are categorised according to the call category - i.e. level of their urgency. The most urgent call appears at the top.

This means that alarms appear at the top, with emergency calls below and calls at the bottom. The oldest call appears at the top within the call categories.

Fresh call are flashing. Answered call do not flash.

You can also determine the category of a call by listening:

Calls

1 second sound - 10 seconds pause...

Emergeny calls

1 second sound - 1 second pause...

Alarms

0.3 seconds - 0.3 seconds pause...

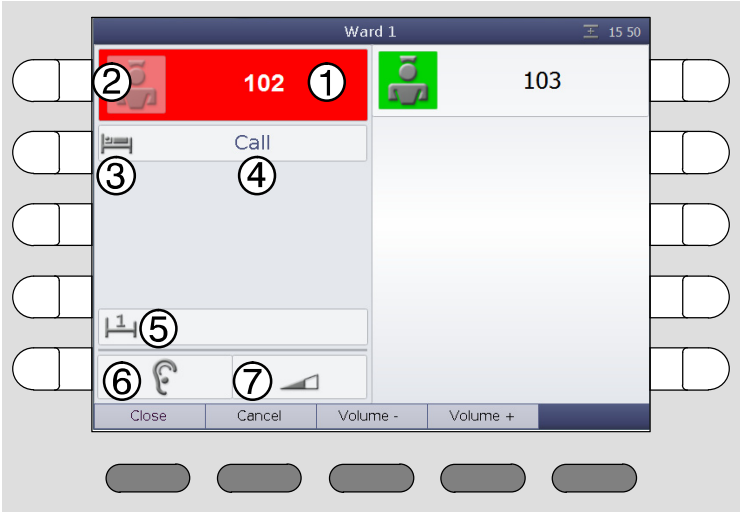
The more urgent the call, the faster the sequence of the sounds.

If there are several calls, you will only hear the most urgent call.

NOTE! The audible call indication is particularly important, if you do not have the main window on your display. Calls can only be heard. They are not displayed.

NOTE! While there is a speech connection only emergency calls and alarms are signalled acoustically.

You will learn the type of call when you establish a speech connection to the room and the speech connection window appears:



① Call location

② Green: Staff 1 in the room

Yellow: Staff 2 in the room

Green/yellow: Staff 1 and Staff 2 in the room

Light red background: No staff in the room

③ Symbol for the call type

④ Call type

⑤ Bed no.

⑥ Status of the privacy in the room, refer to page 20.

⑦ Receiving volume, refer to page 20.

After you have established a speech connection to a call location, the call is named an answered call. Previously, it was a fresh call. Answered calls appear below fresh calls in the call list. Answered calls are not indicated audibly and do not flash.

6.2 Basic procedure for call handling

Call handling always follows the same pattern. You will see this pattern here. Then, we will explain how you carry this out in practice.

On your ComStation^{BUS-C}, one or several calls are shown in the call list. You will handle these calls one after the other.

Calls which you have not yet dealt with are named **fresh calls**. They are flashing in the display.

You establish a speech connection to a caller. On the display, the speech connection window appears. You obtain details about the call from this display.

You speak to the caller. In the conversation, you find out which type of assistance is required. Perhaps, a small piece of advice from you will suffice in dealing with the matter. If this is not sufficient, or you cannot speak to the caller at all, for example, if s/he is not responding, you must send staff to assist him/her. You must decide whether this involves staff from group 1 or group 2 and this depends on the situation.

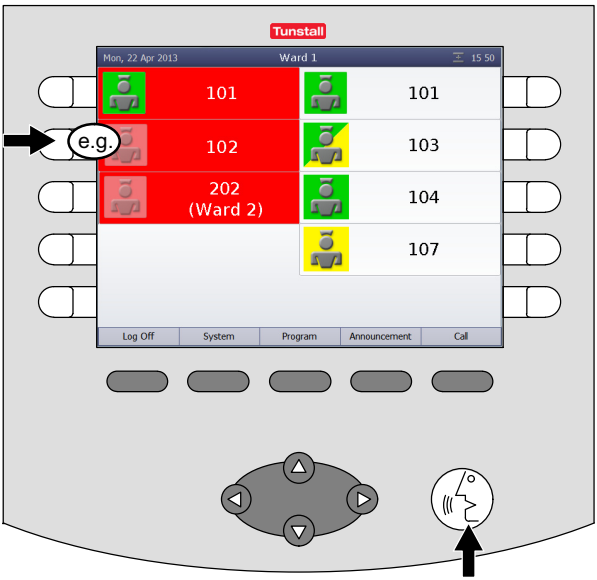
You establish a speech connection with a room where staff is present, and you speak to the staff.

It could be the case that several speech connections are required for the handling of one call. That depends on the individual situation. As long as the call has not been entirely dealt with it is called an **answered call**.

Only when no more action is required the call is **cancelled**. As a rule, the staff cancel the call in the room (by pressing the presence button). The call type “Call“ can also be cancelled at the ComStation^{BUS-C}. All other types of calls must be cancelled at their location. After cancelling the call, the call handling procedure is finished.

6.3 This is how you handle a call

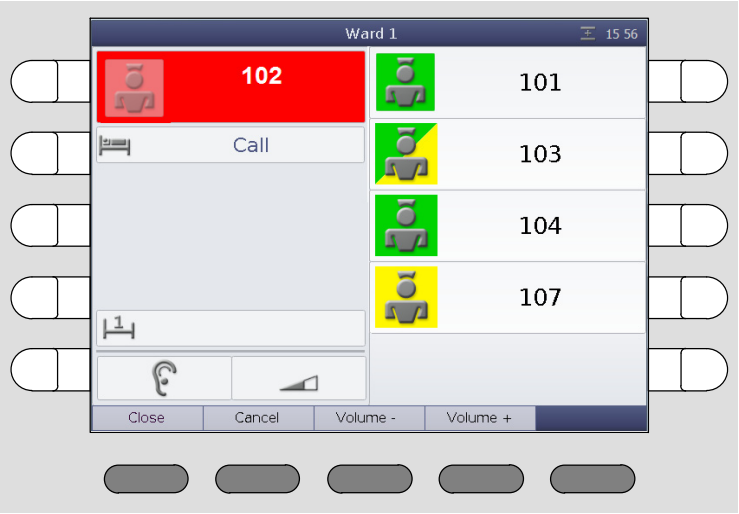
Calls are displayed in the call list. Fresh calls are flashing. The most urgent call is at the top of the call list. You hear the calling tone for the most urgent call.



Select button *or* Automatic button

- Answer a call, i.e. establish a speech connection with the call location. There are two possibilities here:
  Press the select button next to the desired call,
  or
  press the Automatic button. (By pressing the Automatic button you will establish a speech connection with the call at the top of the call list.)

✓ The speech connection window for the call appears. The speech connection is established:



Speak to the caller

- To speak to the caller, use the handset or the hands-free facility.
- If you want to increase the volume when listening, press “Volume +“. If you want to decrease the volume when listening, press “Volume -“.

Closing the speech connection

- For closing the speech connection without cancelling the call press “Close“.

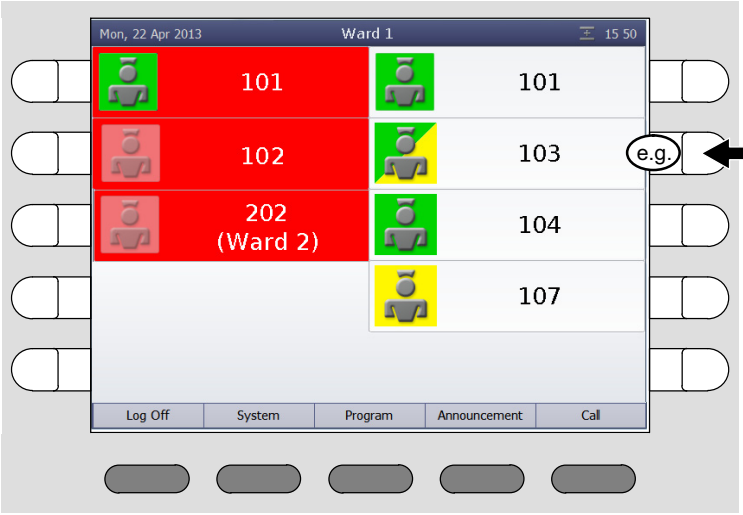
✓ The speech connection window disappears. The call appears as an answered call in the call list.

- You can re-establish a speech connection at any time by pressing the select button of the call.

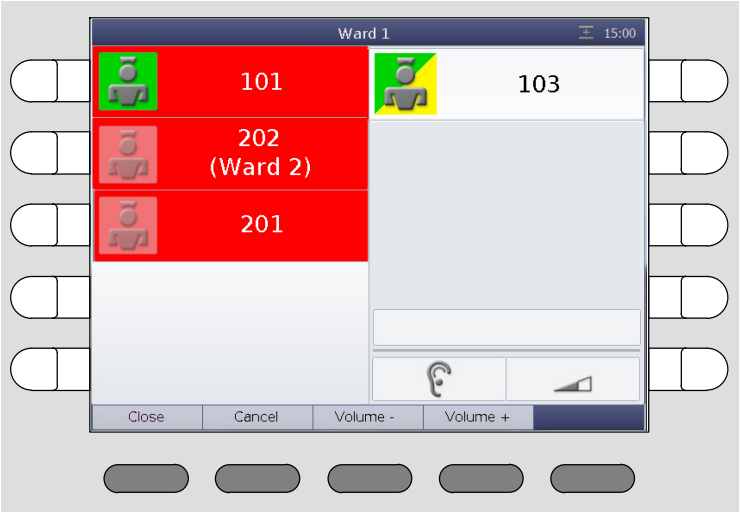
Speaking to staff

- Close the speech connection at the call location by pressing “Close“.

- From the staff list, select the appropriate staff of which you press the relevant select button.



✓ The speech connection window with staff appears. The speech connection is established:



- To speak to the staff, use the handset or the hands-free facility.

- If you want to increase the volume when listening, press “Volume +“. If you want to decrease the volume when listening, press “Volume -“.
- When you have finished the conversation, press “Close“.
- If you want to speak to the caller again, re-establish the speech connection with the call location of which you press the select button of the call.

Door call: Opening the door

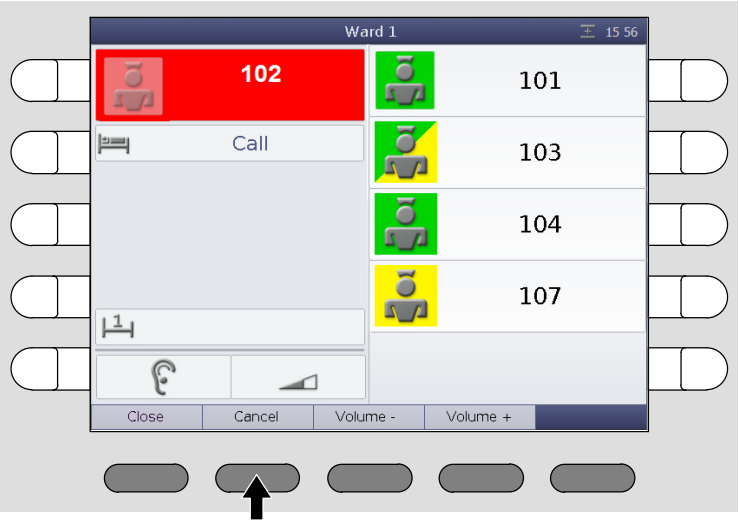
If a call is raised at a door entry speaker, you can activate the door opening mechanism from the ComStation^{BUS-C}. For this there is an additional menu button “Opener“.

- While you press the “Opener“ button, the door opening mechanism is active.

Cancelling a call

NOTE! You can only carry out remote call cancelling with call type “Call“. All other call types can only be cancelled by pressing the presence button in the room or by pressing the cancel button in the WC.

- Press “Cancel“.



✓ The call display disappears. The call is cancelled.

7. Announcements

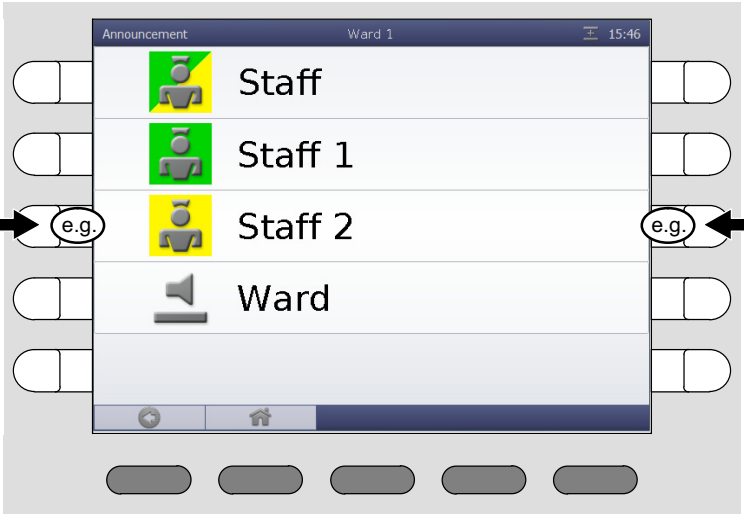
You can make the following announcements

Staff	To all rooms of your ward in which staff are present.
Staff 1	To all rooms of your ward in which staff from group 1 are present.
Staff 2	To all rooms of your ward in which staff from group 2 are present.
Ward	To all rooms in your ward.

This is how you make an announcement:

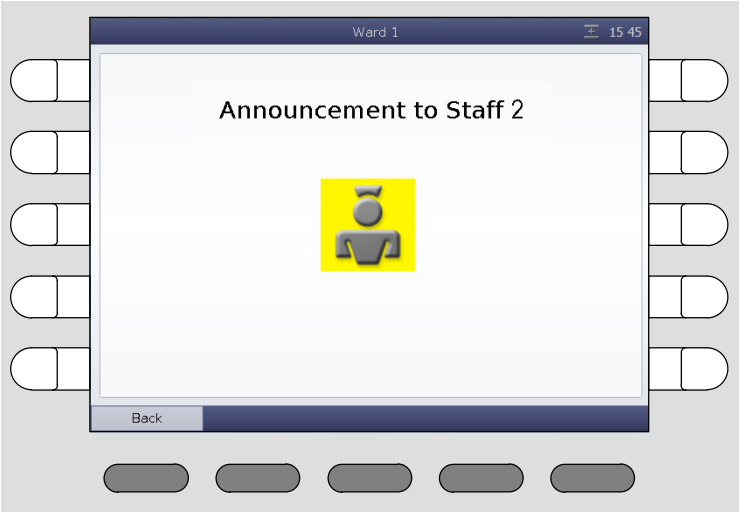
- Press “Announcement“ in the menu of the main window.

✓ The list of possible announcements appears:



- Select the desired announcement by pressing the appropiate select button on the left or on the right side.

✓ The announcement window appears. The speech connection is established.



- Make your announcement into the microphone or the handset.
- When you have finished your announcement, press “Back“.

✓ The announcement is finished.

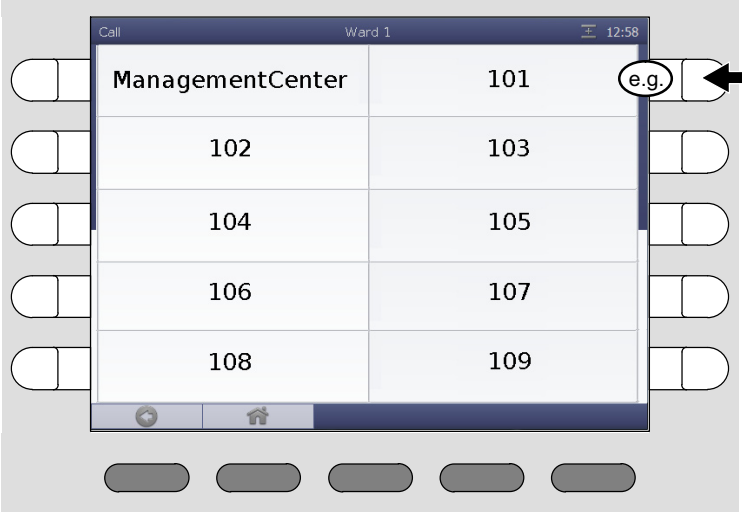
8. Call

You can call the rooms in your ward and other ComStation^{BUS-C} units on your ward as well as the ManagementCenter (if installed).

This is how you call:

- Press “Call“ in the menu of the main window.

✓ All possible call desinations are listed.



- Press the select button of the desired call destination.

✓ The speech connection window appears. The speech connection is established.

- Use the handset or the hands-free facility.

If **Privacy** is displayed in the window, it is not possible for you to hear an answer. If you want to receive an answer, ask the patient to press a call button. This will deactivate the privacy function and you will be able to hear the patient. When you have finished the call, it will appear as an answered call in the call list. Cancel it as described under “Handling calls“.

- When you have finished the conversation, press “Close“.

✓ The call is finished.

Calling the ManagementCenter

At the ManagementCenter your call will not be answered directly. Your request will simply be signalled on the ManagementCenter. The word “ManagementCenter“ is marked orange on your ComStation^{BUS-C}. As soon as the ManagementCenter staff has the time, s/he will establish a speech connection to you. The orange marking of the word “ManagementCenter“ disappears.

NOTE! If needed - e.g. if you have called the ManagementCenter accidentally - you can cancel the call. For this press the select button of the orange marked word “ManagementCenter“. The marking disappears. Your call is cancelled.

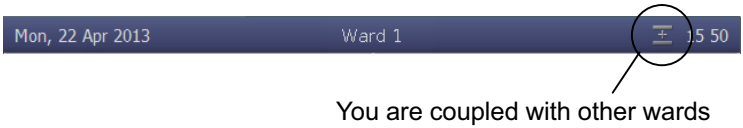
9. Ward coupling

Usually, you look after only those rooms in your ward with your ComStation^{BUS-C}. If necessary, for example when there are few staff, several wards can be coupled.

- All calls and staff registrations in the coupled area are displayed on all ComStation^{BUS-C} units in the area.
- All calls in the coupled area are forwarded to all of the area.

Wards can be coupled by you or by another call handling console.

If one or more wards are coupled with your ward, you will see the following symbol in the title bar of the display:



NOTE! Ward coupling disables shifts (see page 37 onwards). This means that if a shift is active, it will be disabled. The ward is no longer divided into zones.

Your system administrator has installed a maximum of 8 ward couplings, from which you can select. There is a coupling of certain wards behind every ward coupling. Ask you system administrator which wards will be coupled with which ward coupling.

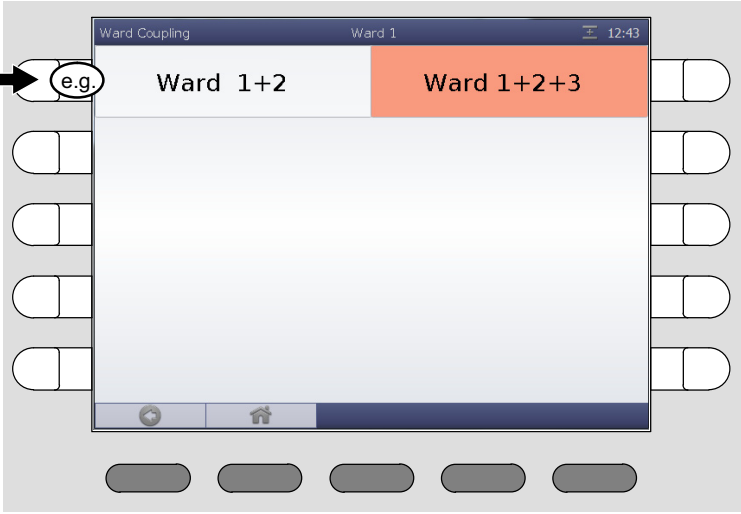
You can activate these ward couplings. At the same time, other ward couplings can be activated, which you cannot influence. If a ward coupling is active, the appropriate wards are coupled.

Activating / deactivating a ward coupling

This is how you activate an inactive ward coupling or how you de-activate an active ward coupling.

- Press “Program“ → “Ward Coupling“.

✓ The ward couplings are displayed.



Active ward couplings are marked in orange; they are activated by you or by another call handling console. Inactive ward couplings are not marked in orange. You can activate or deactivate ward couplings:

- If you would like to activate an inactive ward coupling, press the corresponding select button, so that it will be marked in orange. It will be activated directly.
- If you would like to de-activate an active ward coupling, press the corresponding select button, so that the orange marking disappears. It will be de-activated directly.
- To return to the main window press the button . (If you want to return to the previous menu level, press the button .)

✓ If still a ward coupling is active for your ward, in the title bar the symbol for ward coupling is displayed. The operation is completed.

10. Activating a shift

You only need to read this section, if shifts are assigned to your ward. Ask your system administrator.

To support zone nursing Tunstall has developed the concept of zones and shifts:

Zone

A zone is a part of a ward within which calls are forwarded. Calls which are triggered within the zone are not forwarded to rooms in the ward which lie outside the zone. Usually, certain nursing staff are responsible for one zone.

Shift

The zones of a ward are not set for the long-term. The zone organisation can change. Each division of the ward into zones is classed as a “shift“.

A shift refers to the division of a ward into a maximum of 8 zones. Thus, the zones may overlap each other, i.e. certain rooms can belong to several zones.

A maximum of 8 different shifts can be defined for each ward. You activate shifts using the ComStation^{BUS-C}.

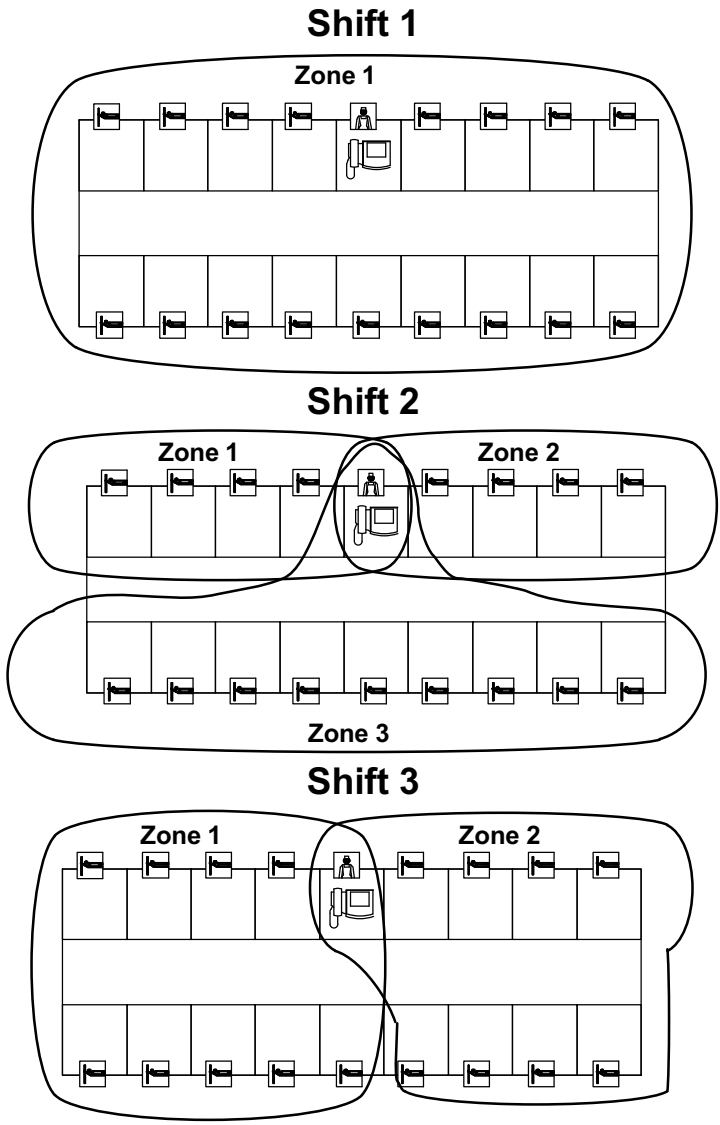
ComStation^{BUS-C}

One or more ComStation^{BUS-C} units are installed in each ward. According to the shift, the ComStation^{BUS-C} units can belong to different zones. If a ward is divided into zones, but only has one ComStation^{BUS-C}unit, the system is usually programed that the ComStation^{BUS-C} belongs to all zones.

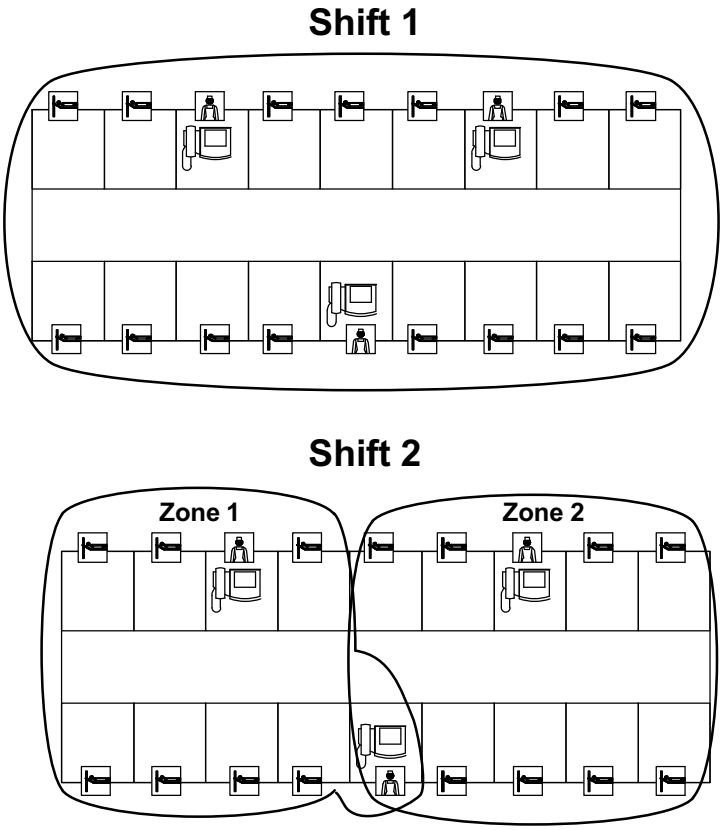
Examples

On the following pages you will find two examples of shift division.

Example with one ComStation^{BUS-C} on the ward:



Example with several ComStation^{BUS-C} units on the ward:



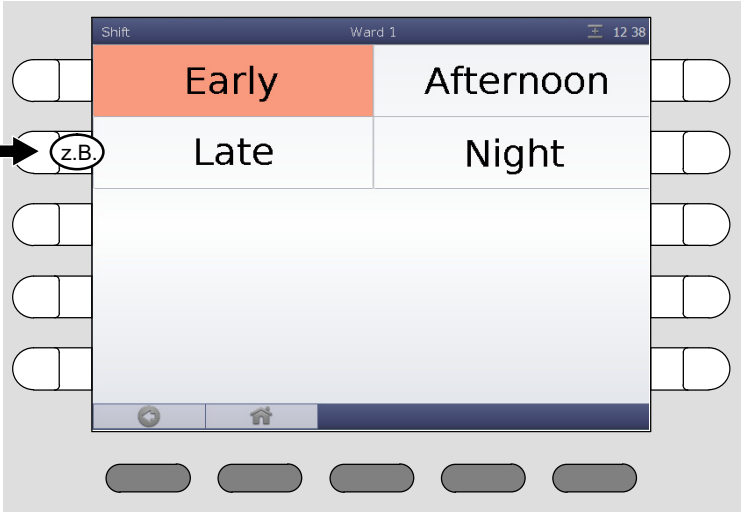
Ask your system administrator how the shifts are assigned on your ward.

Activating a shift

This is how you activate a shift:

- Pressr „Program“ → „Shift“.

✓ The shifts which can be activated for your ward are displayed.



If a shift is active, it is marked in orange.

- If a shift is marked in orange, press its select button.

✓ The shift is no longer marked in orange, thus inactive.

- Press the select button of the shift that you wish to activate.
- The shift is marked in orange, thus active.
- To return to the main window press the button . (If you want to return to the previous menu level, press the button .)

✓ The symbol for shift operation is displayed in the title bar. The operation is completed.

NOTE! Ward coupling (see page 35 onwards) disables shifts. That means, an active shift will be deactivated, if ward coupling is activated. The ward will no longer be divided into zones. In the title bar the symbol for ward coupling is displayed.

Deactivating the shift

You wish to deactivate the active shift, the ward should not be divided into zones.

- Proceed as in the previous section. Only do not activate a new shift after you have deactivated the active one.

11. Adjusting the volume

You can set the following values of the ComStation^{BUS-C}:

- Volume of the loudspeaker
- Volume of the handset
- Volume of the system sounds (e.g. call tone volume)

This is how you proceed:

- Press “System“ → “Adjust“ → “Volume“.

✓ The following window appears:

- To decrease the volume of loudspeaker, handset or system sounds, press the left buttons. To increase the volume of loudspeaker, handset or system sounds, press the right buttons.
- Press “Confirm“.

✓ The volume is adjusted.

- To return to the main window press the button . (If you want to return to the previous menu level, press the button .)

✓ The operation is completed.

12. Put the ComStation^{BUS-C} into operation

It's only permitted to system administrators to install and setup a new ComStation^{BUS-C}. For this s/he needs the so-called configuration password which can be obtained from Tunstall GmbH.

For setting up a new ComStation^{BUS-C} the physical address has to be adjusted. This address must match to the address set up in the "SystemOrganizer" configuration software.

This is how you proceed:

- Plug the ComStation^{BUS-C} plug into the connection socket.
- ✓ In the display appears: "Initialization".
- Please wait until initialization procedure is completed.
- ✓ The log-on window appears, see page 16.
- Press "Log On".
- ✓ You are logged on.The main window appears, see page 13.
- Press "System" → „Config" → "Adjust Address".
- ✓ You are prompted to enter the configuration password.
- Enter the configuraton password, which you obtained from Tunstall GmbH, by pressing the select buttons corresponding to the figures.

✓ The window for adjusting the address appears:

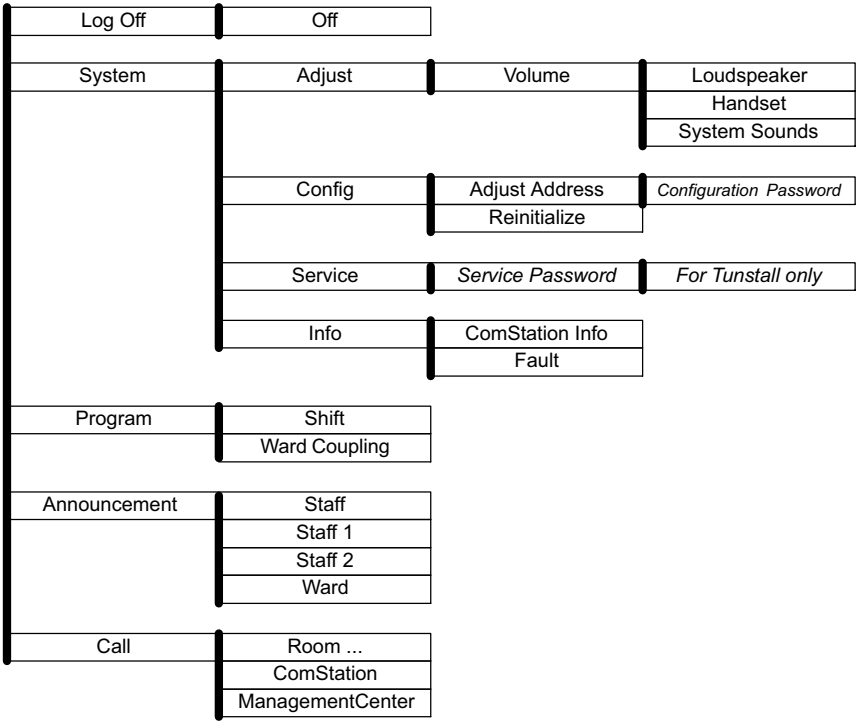
- To decrease the value press the left button. To increase the value use the right button.
- If the correct address is displayed, press “Adjust Address“ by pressing the select button on the left or on the right of the phrase “Adjust Address“.

✓ The ComStation address is adjusted.

- To return to the main window press the button . (If you want to return to the previous menu level, press the button .)

✓ The ComStation^{BUS-C} is put into operation.

12.1 Menu structure



13. Cleaning and disinfection

Important notices

Do not use harsh or abrasive cleaning material or scouring cream.

Non residue-free cleaning fluids collect in the spaces of the housing.

When cleaning or disinfecting, do not touch any electrical contacts.

The ComStation^{BUS-C} is not water-proof. Therefore, do not immerse it into water or cleaning solutions.

Comply with the applicable directives for hygiene at your hospital.

How to proceed

Basically, the ComStation^{BUS-C} can be cleaned with a moist tissue using diluted and residue-free household cleaners or detergents.

The ComStation^{BUS-C} is suitable for moist wipe disinfection. Recommended medium for disinfecting, e.g. Dismozon pur (0.5%) from Bode Chemie, Hamburg, Germany. This oxygen-active surface cleaner and disinfectant features the comprehensive ingredient Magnesium monoperoxyphthalate hexahydrate (MMPP). Before using the disinfectant, read the manufacturer's instructions.

When selecting a cleaning medium or a disinfectant, the following notes to the product materials should be considered.

Product materials

The housing is made from the user-friendly plastic ABS. ABS features a good resistance against dilute organic and inorganic acids, lyes, saline solutions as well as against most animal and vegetable fats and oils. However, concentrated mineral acids, aromatic hydrocarbons, hydrogen chlorides, esters, ether and ketones are aggressive for ABS. Therefore, do not use any cleaning or disinfecting media which contain the before-mentioned ingredients.

The display is made from transparent polycarbonate. This polycarbonate is resistant against dilute acids, oils and ethanol. However, polycarbonate is not resistant against lye solutions, concentrated

acids, chlorinated hydrocarbons, aromatic hydrocarbons and methanol.

The buttons are designed as robust membrane keys. The front is a polyester film with polyurethane. Cleaning can be effected with any cleaning medium which is also suitable for ABS material. Do not use any cleaning agent which contains isopropanol. This ingredient may damage the membrane.

QUALITY
MANAGEMENT
SYSTEM

DQS certified to
DIN EN ISO 9001
Reg. no. 56386

Reg. no. 56386

Tunstall GmbH
Orkotten 66, 48291 Telgte, Germany
Telephone +49 25 04 7 01-0
Fax +49 25 04 7 01-4 99
Email: info@tunstall.de
Web: www.tunstall.de